From dichotomies to dialogues -
connecting discourses for a sustainable urbanism

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Bridging Ecological Urbanism and Urban Political Ecology for a new vision of Water Sensitivity in cities

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Abstract: The spatial imaginaries offered by ecological urbanists working with Water Sensitive Urban Design (WSUD) can potentially foster more sustainable urban development by reclaiming space for water in the urban realm, developing new ecological infrastructure and transforming human relationships with water. However, the societal benefits purported by proponents of WSUD do not always materialise due to social and cultural differences in society which can then make WSUD contentious. Scholarship in urban political ecology has highlighted various contradictions inherent to design-deterministic approaches that attempt to restore water ecologies in cities through green infrastructure systems. For these reasons, it is crucially important to understand what and whose visions and socio-environmental relations are being promoted or not by the Water Sensitive Urban Design approach in order to identify ways in which water sensitive city-making can become more democratic and equitable. The main contribution of this paper is to go beyond the terrain of academic critique by offering urbanists working with WSUD practical ways forward on how to incorporate issues of political ecology into practice. To do so, the paper aims to develop a new approach to design processes which allows discourses of more radical voices to be considered when charting new avenues for water sensitivity.

Keywords: Water Sensitive Urban Design; Urban Political Ecology; Ecological Urbanism.

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1. Introduction

Water Sensitive Urban Design – WSUD is a new approach that integrates water management to urban planning with the priority of ensuring long-term sustainability, liveability, resilience, and prosperity in cities (Ferguson et al., 2013). The main assumption of WSUD is that large centralized potable supply systems of today's cities offer little flexibility for communities to meet sustainable development goals and cope with future conditions related to climate change (Brown, 2012). Therefore, water-sensitive city designs envision a better ecological functioning of the urban landscape through the implementation of a range of green infrastructure and nature-based solutions (Wong et al., 2020). Whether it is the inflexibility of existing technological and design components to be held accountable for impeding a transition to a water sensitive scenario, however, remains to be assessed.

The appeal to WSUD as something that can re-arrange cities necessarily translating into benefits becomes far more complex when its implementation is analyzed against the backdrop of history and power relations that constitute capitalist societies. Contradictions inherent to the design-deterministic approaches of Ecological Urbanism's attempt to restore nature in the city have been explored in the past by the urban political ecology – UPE

scholarship. Literature on ecological gentrification, for instance, expose how greening agendas become linked to the exacerbation of injustices for vulnerable groups (Anguelovski, 2016). Already the literature on WSUD has begun to caution against forming white, middleclass ghettos where only the relatively affluent can enjoy the benefits of a sustainable development (Leonard et al., 2019).

Despite the consolidation of UPE research and recognition of its critique by the ecological urbanism scholarship, the divide between academic work on social justice and on the ground interventions of physical designs has been identified as a reason for the exacerbation of urban inequality and injustice (Shi et al., 2016). Considering that urban water provides an inspiring sector for studying sustainability transitions (de Haan et al., 2015), this paper departs from the necessity to go beyond the academic terrain of critique to bridge the divide between UPE and Ecological Urbanism towards a new vision of water sensitivity. It also identifies ways in which the key learnings of the critical social sciences, namely UPE, can be mobilized to support WSUD practice. The aim is to guide ecological urbanists imagining new forms of water sensitive living to chart politicized avenues beyond design processes that leave uneven socio-ecological dynamics untouched (Kaika & Swyngedouw, 2014). Ultimately, it wishes to unleash designers' potential as facilitators towards the achievement of a city that is both water sensitive and socially just.

2. Theories and Methods

Following the learnings brought by classic literature of ecological advocacy (e.g. *Silent Spring*; *Design with Nature*; and *The Granite Garden*), the end of the twentieth century was marked by a concern for landscape, urban design and ecology. Within this context, landscape urbanism emerged as a powerful narrative for academic discourses, professional practices and, ultimately, the unleash of ecological urbanism (de Block et al., 2019). While development in urbanism was traditionally guided by a structure – a wall, roads, or buildings – with green spaces relegated to left-over areas or used for ornament, landscape urbanism proposes to integrate cultural and natural processes to help designers organize the urban form (Steiner, 2011). In this sense, its practices reject the pastoral images of nature as an aesthetical exception to the gridded urban fabric and recommends the use of infrastructural systems and the public landscapes they engender as ordering mechanisms of the urban (Waldheim, 2002). While remaining largely theoretical, landscape urbanism advances the earlier pictorial, bucolic, and aesthetic tradition of landscape architecture to incorporate the inherent conflictual conditions between ecology and urbanism (Mostafavi & Doherty, 2010).

Rooted in the radical extension of ecological metaphors within urban design discourse, ecological urbanism followed the conceptual agenda from landscape urbanism by shifting urbanism towards regional scales (Gandy, 2015) and developing the aesthetic means – projects – to establish new relationships with the environment in cities (Mostafavi, 2010). Ecological urbanism offers a set of architectural and design interventions that supposedly help cities to transcend any ecological circumstance such as those posed by climate change or resource constraint (Hodson & Marvin, 2010). Despite its perpetration as a technical endeavor to radically transform the way cities urbanize, the primary function of ecological urbanism remains rhetorical (Adams, 2017) with a lot of enthusiasm and little developments ever leaving the drawing board (Hodson & Marvin, 2010). While such imaginative thinking that is characteristic of ecological urbanism remains important for sustainable transitions to happen in cities, it is ever more necessary to question 'who' has the power to enact it and what spatial transformations result from this process.

While ecological urbanism lacks behind in characterizing who these 'people' are and whether they appreciate these changes in the landscape in the first place, Urban Political Ecology – UPE offers significant insights into the socio-cultural relations of urban environments. By attempting to explain how both social and ecological processes flow within and through the urban, UPE provides a view for designers to understand how ecological flows become constituted through sociopolitical processes. The effective learning of UPE by ecological urbanism can potentially counter the tendency for WSUD projects to be simplistic or naïve about actual possibilities of transformation for urban water landscapes. If ecological urbanism is considered as a discursive practice that is not fixed, it is possible to provoke our imagination to envision what it can become (Buizer, 2016). One possible becoming is to take UPE in consideration to envision a future when ecological landscape designs do not gloss over the complex socio-political urban contexts because of a narrow concern for ecological and landscape qualities. This paper dissects how ecological urbanism can approach water sensitivity in a way that allows more equitable distributions in cities by theoretically bridging it to urban political ecology.

3. Results

3.1. Bridging Ecological Urbanism and Urban Political Ecology

So far, the scholarship of UPE has had a tendency to remain inside its own academic bubble and refrain altogether from engaging in debates on how to translate this theoretical critique into urban design practice. To reverse this tendency, this article aims to bridge these two bodies of scholarship. First, if ecological urbanism promises to reconstruct nature *as* urbanization (Adams, 2017), it should realize that the concept of urbanization, in the view of UPE, is a metabolic process deeply committed to insuring the uninterrupted expansion of capital accumulation (Swyngedouw & Kaika, 2014). Ecological urbanists have already realized that process should be favored over form – '*terra fluxus*' over '*terra firma*' – in conceptual representations of cities (Corner, 2006). To fully grasp the idea of landscape as process, Urban Political Ecologists would say that the main task is to incorporate the politicized and uneven nature of this urban synthesis (Heynen et al., 2006). To consider such socio-political processes means to account for the ways in which benefits and disbenefits of urban nature are distributed to design new pathways and spatial arrangements toward positive benefits for those who have been traditionally excluded from such processes, spaces and amenities (Anguelovski et al., 2020).

UPE recognizes that the governing arrangements that produce uneven urban environments are often nominally democratic and, therefore, represent a potential pathway to reverse inequalities. However, the right of participation in democracies is not necessarily a given but acquired historically through intense political and social struggle. To apply the concern of UPE with democracy and the politically embedded ecological transformation of the urban landscape, Ecological Urbanism as a practice should shift from a techno-managerial urban solution into a tool of democratic political action. So far, too often design processes are led by authority-experts that assume beforehand they know what is best for citizens and only realize a need for their involvement after the design has been finalized. In this sense, ecological urbanism as a design practice can reproduce dominant grey epistemological approaches and reinforce the authority of engineers and planners if it does not have an honest conversation about who green infrastructure is for (Finewood, 2016).

A shift has already been signaled by Ecological Urbanists that claim that a new design practice for urban-ecological systems is fundamental and a pre-condition to the 21st-century economy (Belanger, 2009). If this new design practice responds to the critique of UPE, it should be committed to be political and influence the management of urban commons from a political vantage point articulated around the notion of equality (Swyngedouw, 2014). This entails the recognition that urban designers occupy a privileged position in processes of city-making to leverage more inclusive futures by enacting its sociopolitical role and capacity to contest. A politically committed ecological design practice can draw inspiration from or build strong coalitions with civil society movements in cities to counter the tendency for ecological paradigms to be co-opted by political agendas that re-produce, deepen or generate new forms of inequalities.

Further, Ecological Urbanism literature has already recognized that local intervention alone is doomed to failure as problems felt in one place may be caused by activities that take place elsewhere (Spirn, 2014). Therefore, to apply UPE to Ecological Urbanism would be to recognize that urban ecological conditions and the configurations of their governance are never just local but extensively multi-scaled and spatially networked (Swyngedouw & Kaika, 2014). For an ecological design practice to be truly commited with justice and equality it should consider different spatial scales to ensure, for instance, that problems that are supposedly 'solved' locally are not merely shifted to other less privileged localities.

3.2. Applying the critique to Water Sensitive Urban Design

Stemming from conceptualizations of the ecological urbanism scholarship, Water Sensitive Urban Design arrives with the aim to ensure that water is given due prominence in the way cities urbanize. The precepts of designing with nature within WSUD is presented as the new technoscientific 'solution' to urban problems as it re-engineers urban metabolic processes and celebrates cities as the front-runners of sustainability (Brenner & Schmid, 2015). With a different set of concerns, urban political ecology's early discussions about the resulting uneven configurations of urban processes has sprung out of the contestation of water in the production of urban hydroscapes (Heynen, 2013). While WSUD already integrates engineering disciplines and the environmental sciences (Wong & Ashley, 2006), this approach calls for further expansion by integrating the social sciences through

an application of UPE's critique as outlined in the earlier section. In this sense, not only the provision of water services and the protection of aquatic environments in urban areas would be considered but also how the political can be brought into consideration to address issues related to processes of distribution.

At the level of theory, WSUD already attempts to differentiate itself from other frameworks anchored in the water engineering domain by claiming interdisciplinarity and giving equal consideration to the social sciences (Bichai & Flamini, 2017). Despite this advance, however, there are too few, if any, social scientists actually engaging in the construction of this interdisciplinarity. Supporters of 'water sensitivity' acknowledge that a critical element of transitioning to water sensitive cities is fostering an engaged citizenry – citizens that understand, value and actively support this transition (Dean et al., 2016). However, perhaps it is the very imbalance of social as opposed to more engineering disciplines in the construction of the Water Sensitive City vision that keeps the involvement of this supposedly "engaged" citizenry restricted.

Citizen engagement, when it happens, is likely to occur when acceptance is needed to implement the proposed solutions and appreciation and care is required from citizens to sustain the physicality of green projects in the long term. Yet, if experts do acknowledge the need to co-design solutions together with citizens they may lack the most basic understandings of what is needed for these participatory dynamics to unfold. For instance, insights on co-design processes are often marked by experts' frustrations once they could not find the community typology they had idealized in order to initiate the participatory process they had planned. Moreover, participatory processes can also serve to capture or coopt the demands or achievements of civil society movements and the clear line between participation and increased justice is not direct, even when inclusion is intentional (Anguelovski et al., 2020).

Adding to this complication, the rapidly growing cities of the Global South reflect an urban dynamic unrelated to the classic paradigms of city governance and planning making it increasingly difficult to talk about urbanization in general terms without due consideration of context (Gandy, 2019). As imaginaries of the Water Sensitive City start to travel globally, seemingly similar designs in different contexts are bound to lead to varying social and cultural outcomes (Buurman & Padawangi, 2018). The Room for the River[1] scheme from the Netherlands, for instance, has entered a phase of "international spinoff". For densely populated delta regions of the globe, this imaginary of resilience offers pathways to adapt to river overflows such as the creation of park areas and new building typologies for controlled flooding (Smith, 2011). On the other hand, it disguises the activities of displacement and relocation that the model inherently requires which may translate to mass evictions of poor families in countries of the Global South (Yarina, 2018).

That said, it is even more important to recognize UPE's critique that recognizes the issues of equitable access in the cities of the South as embedded in the larger question of the Right to the City (including the right to nature) (Zerah & Landy, 2013). Taking the experiences of lake restoration in Bangalore, for example, changes in the ecosystem health and function of water bodies have transformed place meanings and resulted in selective inclusions and exclusions. Areas that were previously degraded are now considered "lung spaces" and "bird sanctuaries", making the imaginaries of these places more congruent with users self-identification as "nature people", thus, fostering community care for urban green spaces (Murphy et al., 2019). On the other hand, these efforts have also resulted in enclosure and control of lake activities that further exclude lower classes whose identities linked to fishing, fodder collection and agriculture do not conform to the urban environmental imaginary that privileges nature conservation, urban aesthetics and recreation (D'Souza & Nagendra, 2011).

3.3. Setting an Agenda for inclusive Water Sensitive Cities

According to Bell, "the future form of urban relationships to water is now open for renegotiation" and WSUD presents itself as an alternative to the conventional grey infrastructures of cities' water systems. However, this new design practice will not confront issues of justice and equality in cities if there is little dialogue between researchers engaged with the critique of UPE and Ecological Urbanists involved in imagining future waterscapes for cities. Considering the central role that WSUD as an imaginary for cities can play in articulating what accepted relationships with water in cities are, what they should be, and for which and whose values, it is ever more important that ecological urbanists

[1] The Room for the River is a Dutch government design plan that aims to address flood protection by creating more room for rivers in the Netherlands, allowing surrounding areas or rivers to be inundated during periods of high water levels.

understand their roles and responsibilities to facilitate more equitable designs. Considering that water sensitive visions will later manifest in specific interventions that are bound to produce winners and losers, it is central that designers ensure that water sensitive living is not exclusive to the already privileged and most vocal populations. In this sense, it is important for designers to understand how the decisions they make about urban water can fit into larger processes of exclusion and potentially affect the everyday experiences of communities.

By questioning whose voice, authority and expertise counts in making decisions about water in cities, UPE can help designers understand the power imbalances between various actors engaging (or not) in processes of design. Once the sociopolitical role of design as a tool of mediation is recognized, it is presumed that designers will be better equipped to situate and position themselves within this contested field. Within this role, it is suggested that the designer acts as a facilitator that makes sure that the voices and knowledges of those that are usually excluded from the benefits and suffer the burdens of city-making are included through a participatory approach. On the other hand, participatory design processes in themselves are not a guarantee of just and equitable outcomes. It is important that ecological urbanists tie beforehand the Water Sensitivity urban agenda to the eradication of inequalities. What this means in terms of urban design is that outcomes should not only focus on the transformation of urban nature but prioritize its secure and permanent use by marginalized groups, thus, avoiding at all costs that mechanisms of exclusion unfold from the implementation of water sensitive visions.

Finally, for an agenda of water sensitivity to engage with UPE, the role of expertise in Ecological Urbanism must be reframed. If we consider that designers' own imaginaries can obscure the possibility that water sensitive projects perpetuate or create social inequalities (Yarina, 2018), then other knowledges must be called upon to widen up our understanding of what these imaginaries might represent to different groups. While landscape architects provide knowledge about ecological and built systems within the urban environment, for instance, those on the ground can provide knowledge about place, experience, and identity. The learnings of UPE research in the Global South more specifically cautions designers against general approaches to issues of urbanization. While this points to a challenge for the application of ecological urbanism, it also represents an opportunity for designers to overcome disciplinary boundaries and explore different ways in which they can incorporate the methodologies of UPE to enhance the understandings of socio-cultural context.

4. Discussion

This paper is an attempt to construct a dialogue between the scholarships of Urban Political Ecology and Ecological Urbanism towards a new vision of water sensitivity for cities. This new vision understands that a focus on the transformation of urban nature's form is not in itself sufficient to achieve water sensitivity in cities because it may lead to the exacerbation of existing inequalities or create new ones. Therefore, the agenda for WSUD must be tied to a commitment with the eradication of spatial inequalities and consider inclusiveness in design processes. To achieve this, designers are called to re-consider their roles and actions shifting from a position limited to technical expertise into that of mediators and activists committed to make visible the populations that are often burdened by processes of city-making. In this new role, it is also important that designers are not the only experts in the room but that design processes value local knowledges as expertise, thus, bringing more sensitivity to socio-cultural considerations.

5. Conclusions

The future of ecological urbanism holds major questions about how to ensure a better ecological functioning of the urban landscape. Centered around concerns with water scarcity, polluted waters and flooding, Water Sensitive Urban Design is one attempt to answer these questions. While this design approach holds great potential, this article argues that it can only be truly transformative if questions of equity are considered in the water sensitive agenda. One way to do this is by applying the key learnings of Urban Political Ecology. Central for ecological urbanists is to activate their role as activists and mediators in the immaterial struggles that unfold from competing visions of water sensitivity. Within this role, designers ought to avoid that their concerns with water blind them to the sociopolitical processes that reproduce or deepen inequalities by, for instance, being attentive to local knowledges and experiences.

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